

Ferroelectricity Newsletter

A quarterly update on what's happening in the field of ferroelectricity

Volume 10, Number 4

Fall 2002

SECOND PART OF IFFF 2002 REPORT SHARES PAGES WITH PAPERS ON THE PHYSICS OF FERROELASTICS

The Summer 2002 *Ferroelectricity Newsletter* listed the oral presentations and a portion of the poster presentations given at the **International Joint Conference on the Applications of Ferroelectrics 2002** (IFFF 2002) in Nara, Japan, last May.

This issue features the titles and authors of the rest of the poster presentations, covering the following topics: microwaves (p. 2), domain (p.3), fundamental, theory, model (p.4), characterization--except SPM (p.5), characterization--SPM (p.6), dielectrics (capacitors, ceramics) (p.7), ferroelectrics (ceramics) (p.8), piezoelectrics (p. 8), MFS, MFMIS (p.11), FeRAM, devices, integration, circuits (p. 12), single crystals (growth, properties) (p.13), pyroelectrics (p. 15), optics (p. 15), electrode (p. 16), high-k and gate oxides (p. 16), miscellaneous (p. 17), thin films--fabrication--SBT system (p. 18) and thin films (fabrication--etc.) (p. 18).

Papers presented at the **Third International Seminar on the Physics of Ferroelastics (ISFP-3)**, held September 2000 in Voronezh, Russia, complete this issue. For a systematic study of the physics of ferroelastics it is important to understand the relation between the properties of this crystal class and the presence of structural phase transitions. You'll find papers on this and related topics on pages 19-20.

Volume 265 (2001) of the journal *Ferroelectrics*, which features the proceedings of the Voronezh seminar on the physics of ferroelastics, has a **book review** by S.C. Abrahams (Physics Department of Southern Oregon University in Ashland) of *Introduction to Ferroic Materials* by Vinod K. Wadhawan, published by Gordon and Breach in 2000.

On pages 21-22 the **Office of Naval Research** announces its interest in **projects to apply relaxor piezoelectrics, in the form of single crystals, to Navy SONAR systems**. An intense program of materials development and device demonstrations has confirmed the considerable potential originally envisioned for Navy SONAR devices.

The deadline for **ISIF 2003 abstract submission** has been extended to 15 November 2002. Please see page 23 for details.

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Ferroelectricity Newsletter

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Fall 2002

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Please visit our Web site:
<http://www.sp.nps.navy.mil/projects/ferro/ferro.html>

Rudolf Panholzer
Editor-in-Chief

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INTERNATIONAL JOINT CONFERENCE ON THE APPLICATIONS OF FERROELECTRICS

The international joint conference on the applications of ferroelectrics was held in Nara, Japan, from 28 May to 1 June 2002. On this memorable occasion, the world's most important international symposia on the application of ferroelectrics, the **IEEE International Symposium on the Applications of Ferroelectrics (ISAF XIII 2002)** and the **International Symposium on Integrated Ferroelectrics (ISIF XIV 2002)**, met together for the first time in Japan. The meeting on **Ferroelectric Materials and Their Applications (FMA XIX 2002)**, Japan's domestic meeting dedicated to ferroelectric materials and their applications since 1977, was the third partner in this joint international ferroelectrics conference called **IFFF 2002**.

IFFF 2002 Proceedings

The proceedings of the international joint conference will be published in the following journals:

**Proceedings
ISAF XIII 2002
ISIF XIV 2002
FMA XIX 2002**

**Published in
IEEE Proceedings
Integrated Ferroelectrics
Japanese Journal of Applied Physics**

The following is a list of poster presentations given at IFFF 2002, not listed in the Summer 2002 issue of Ferroelectricity Newsletter arranged by topic.

MICROWAVES

8 GHz microwave filters based on bulk acoustic waves in piezoelectric ALN thin films

R. Lanz and P. Murali

Microwave properties of thin BSTO films depending on deposition conditions

*S.V. Razumov, A.V. Tumarkin,
M.M. Gaidukov and A.G.
Gagarin*

Design of multilayer microwave devices by coupling matrix algorithm for LTCC processor

*C.-M. Lei, I-N. Lin, Y.-C.
Chen and H.-F. Cheng*

60 GHz phase shifters based on BSTO ferroelectric films

*A. Kozyrev, A. Ivanov, O.
Soldatenkov, M. Gaidukov, A.
Gagrin, A. Tumarkin, S.
Razumov, N. Samoylov and S.
Augunova*

Optimization of reflection type microwave phase shifters with respect to sensitivity to statistical dispersion of circuit characteristics

*O.G. Vendik, S.P. Zubko and
M.A. Nikol'ski*

A 180 λ X-band high performance phase shifter

*B. Acikel, T.R. Taylor, P.J.
Hansen, J.S. Speck and R.A.
York*

Tunable microwave filters using ferroelectric materials

*O.G. Vendik, I.B. Vendik, V.V.
Pleskachev, M.A. Nikol'sk,
and M.L. Khazov*

Fabrication and properties of multielectrode slotline microwave resonators based on ferroelectric films

*S.F. Karmanenko, I.G.
Mironenko, T. Inushima, A.A.
Ivanov and A.A. Semenov*

Passband and stopband tunable filters based on ferroelectric multislots resonators

*I.G. Mironenko, A.A. Ivanov,
S.S. Karmanenko, A.A.
Melkov and A.A. Semenov*

Characterization of tunable bandpass filters and phase shifters using BST thin films for microwave application

*I.-D. Kim, J.-H. Park, M.-H.
Lim, M.-S. Kim, H.-G. Kim,
K.-B. Kim, T.-S. Yun and J.-C.
Lee*

Results of full-wave analysis of ferroelectric multislots and experimental study of the phase shifter

*I.G. Mironenko, A.A. Ivanov,
T. Inushima, S.F. Karmanenko
and A.A. Semenov*

Microwave dielectric properties of metal-ferroelectric-oxide-semicon-

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ductor structure.

S. Abadei

Theory and experiments of tunable microwave coupled microstrip phase shifters using $\text{Ba}_x\text{Sr}_{1-x}\text{TiO}_3$ thin films

F.V. Keuls, C. Mueller, R. Romanofsky and F. Miranda

Finline ferroelectric phase shifters and 30GHz antenna array on their base

A. Golovkov, D. Kalinikos, O. Buslov, V. Keis, M. Sugak, A. Kozyrev, P. Kulik and L. Sengupta

The design of optimal construction of Ka-band coplanar phase shifter for LMDS phased array antenna

A. Kozyrev, V. Osadchy, A. Pavlov, M. Gaidukov, A. Gagarin, A. Vishnevetsky, A. Zverev, A. Fedotov and L. Sengupta

Structural evolution and dielectric properties of sol-gel $(\text{Ba},\text{Sr})\text{TiO}_3$ thin films for microwave devices

X.F. Chen, W. Zhu, S.Y. Lim and O.K. Tan

Effect of A-site substitution by Nd^{3+} on the microwave dielectric properties of $(\text{PbCa})(\text{FeNb})\text{O}_3$ ceramics

Q.H. Yang, E.S. Kim, J. Xu and Z.Y. Meng

Study of dielectric frequency response of microwave

$\text{Bi}_2(\text{Zn}_{1/3}\text{Nb}_{2/3})_2\text{O}_7$ thin films

H.-F. Cheng, Y.-C. Chen, H.-L. Liu, L.-G. Hwa and I-N. Lin

Investigation of electrical degradation effects in ferroelectric thin films based tunable microwave components

K. Astafiev, V. Sherman, A. Tagantsev, N. Setter, T. Rivkin and D.S. Ginley

Tunable dielectric properties of BST thin films for RF/MW passive components

J. Bellotti, E.K. Akdogan and A. Safari

Microwave properties of compositionally graded $(\text{Ba},\text{Sr})\text{O}_3$ thin films for electrically tunable microwave devices

S.-J. Lee, Y.-T. Kim, S.-E. Moon, W.-J. Kim and E.-K. Kim

Microwave dielectric characteristics of Y_2BaZnO_5 ceramics with Sm substitution for Y

A. Kan, H. Ogawa and H. Ohsato

Preparation and dielectric properties of BST thin films by RF sputtering for tunable microwave applications

J. Xu, C. Weil, W. Meneskou, R. Jakoby and E. Ivers-Tiffée

The effect of annealing conditions on dielectric properties of $(\text{Ba},\text{Sr})\text{TiO}_3$ thin films for microwave tunable devices

B.Y. Lee, C.I. Cheon, E.J. Yun and J.S. Kim

Characteristics of Ni doped $(\text{Ba}_{0.5}\text{Sr}_{0.5})\text{TiO}_3$ thin films on MOCVD- $(\text{Ba}_{0.5}\text{Sr}_{0.5})\text{RuO}_3$ interfacial layers for microwave tunable

devices

Y.-A. Jeon, N.-J. Seong, T.-S. Seo and S.-G. Yoon

DOMAIN

Temperature dependant domain structures of lithium niobate single crystals

D. Xue, R. Jayavel, K. Terabe, K. Kurimura and K. Kitamura

Domain motions in epitaxial $\text{Pb}(\text{Zr},\text{Ti})\text{O}_3$ thin film capacitors by the piezoresponse imaging technique

T. Yagi, H. Fujisawa, M. Shimizu and H. Niu

Domain structure in congruent and stoichiometric lithium tantalate controlled by electric field

V. Shur, E. Shishkin, E. Nikolaeva, D. Fursov, A. Chernykh, A. Shur, K. Terabe, S. Kurimura and K. Kitamura

Investigation of the influence of an ionic bombardment on domain propagation in PZT thin films

B. Gautier, C. Soyer, E. Cattan, J.C. Labrune and D. Remiens

Domain observation in PZN-PT mixed crystals

T. Araki, M. Iwata, M. Maeda, I. Suzuki, H. Ohwa, Y. Yasuda, H. Orihara and Y. Ishibashi

Basic approach to periodical and self-organized submicron and nanoscale domain patterning in ferroelectrics by electrical poling

V. Shur

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Investigation of domain structure in multilayer ceramic capacitors using piezoresponse force microscopy

H. Okino, K. Yuzawa and T. Yamamoto

FUNDAMENTAL, THEORY, MODEL

Structural transformation and pressure-induced phase transition in PZT

V. Bornand, J. Haines, J. Rouquette, M. Pintard and P. Papet

A difference-equation based model for ferroelectric thin film capacitors

S. Sun and T.S. Kalkur

Simulation of PTCR behavior in N-doped BaTiO₃ ceramics

L. Mitoseriu, M. Viviani, D. Risinschi, C. Fedor and P. Nanni

Phase transition in layered perovskites: a Monte Carlo simulation

C.H. Li, J. S. Zhu, X.M. Lü and Y.N. Wang

Comparison between Mason's equivalent circuit and complex series dynamics from energetic point of view

M. Ohki and K. Toda

Properties of prototype solid solutions of KNbO₃, KTaO₃ and LiTaO₃ on the basis of first-principle computations and experiment

S.A. Prosandeev, E. Cockayne, B. Burton, V.A. Trepakov, S. Kapphan, M.S. Savinov and L. Jastrabik

Finite element analysis of residual stress contribution to domain locking and stability in piezoelectric thin films

G. White

Terahertz time domain spectroscopy of phonon-polariton in ferroelectric lithium niobate crystals

S. Kojima

Piezoceramic coefficient hysteresis under high stress and electrical fields

E. Boucher, G. Sebald and D. Guyomar

Study of dipole ordering in K_{1-x}Li_xTa_{1-y}Nb_yO₃ by Raman spectroscopy

P. Galinetto, E. Giulotto, G. Samoggia, V. Trepakov, S. Kapphan, L. Jastrabik, and P. Symikov

Effects induced by poling in a PZT material

M. Popa and M. Kakihana

Structural characterization of a lead zirconate material obtained by a wet chemical route

M. Popa, E. R. Camargo, J. Frantti, and M. Kakihana

Kinetics of fatigue and rejuvenation effects in bulk ceramics and single crystals

V. Shur, I. Baturin, E. Rumyantsev, E. Nikolaeva, E. Shishkin, A. Shur, D. Lupascu, J. Nuffer, C. Randall and M. Ozgul

Computer simulation of P-E hysteresis of ferroelectrics

Y. Kubota, H. Kakemoto, S. Wada and T. Tsurumi

Ferroelectric phase transition in bilayered SrBi₂Ta₂O₉

H. Yamashita, K. Yoshio, W. Murata and A. Onodera

Electrical conduction mechanism in Bi₄Ti₃O₁₂

M. Takahashi, Y. Noguchi and M. Miyayama

Dielectric response in microscopically nonuniform media:

KTa_{1-x}Nb_xO₃ and K_{1-x}Li_xTaO₃

A. Prosandeev, V.A. Trepakov, S. E. Kappan, and L. Jastrabik

Monte Carlo simulation of ferroelectric properties

D. Bolten, U. Böttger and R. Waser

Optical observation for domain structures and dielectric measurement in relaxor ferroelectrics PZN-PT near morphotropic phase boundaries

K. Fujita, N. Yasuda, H. Ohwa, M. Iwata, H. Orihara and Y. Ishibashi

Morphotropic phase boundaries in perovskite solid solutions

E. F. Alberta, R. Guo, and A.S. Bhalla

Hydrogen bonds and proton transfer in ferroelectrics and related materials (molecular chains, proteins, DNA): *Ab initio* Gaussian-98 calculations and soliton models

V. Bystrøv, M. Green, A.

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*Sapronova, G. Ovtchinnikova,
T. Tazieva, A. Soloshenko,
M. Shaiko and B. Zapol*

Site occupation and dielectric characteristics of strontium barium niobate ceramics: Sr-Ba ratio dependence

*M.-S. Kim, J.-H. Lee, J.-J.
Kim, H. Y. Lee and S.-H. Cho*

Monte Carlo simulation of atomic ordering in $(1-x)A(B^{II}_{1/3}B^{IV}_{2/3})O_3-xAB^{IV}O_3$ type relaxor ferroelectrics

*J.S. Liu, X.W. Zhang, Z.R. Liu,
B.L. Gu and W.H. Duan*

Modeling and Monte Carlo simulation of intrinsic ferroelectric switching behavior in barium titanate

J.S. Liu and Y.N. Wang

Octahedral tilting domain boundaries in calcium-modified lead titanate ceramics

*C.-C Chou, I-W. Su and D.-S.
Tsai*

CHARACTERIZATION--EXCEPT SPM

The effect of different dopants on diffuse phase transition and ordering degree in PMN

C. Feng, Y. Yang and Y. Yu

Mechanical aging behavior of $Pb(Zn_{1/3}Nb_{2/3})O_3-PbTiO_3$ and $Pb(Mg_{1/3}Nb_{2/3})O_3$ single crystals

S. Priya and K. Uchino

Charcterization of the direct piezoelectric coefficient of thin films via a modified Berlincourt method

M.G. Cain and M. Stewart

International intercomparison of direct piezoelectric coefficent using the Berlincourt method

*M.G. Cain, M. Stewart and M.
Lodeiro*

Measurement method for the characterization of the nonlinear blocking force in piezoelectric actuators

M.G. Cain and M. Stewart

Relaxor behavior and polarization response of proton irradiated BST/P(VDF-TrFe) composites

*S.U. Adikary, H.L.W. Chan,
C.L. Choy, B. Sundaravel and
I.H. Wilson*

In situ transmission electron microscopy study of electric field-induced microcracking in $Pb(Mg_{1/3}Nb_{2/3})O_3-PbTiO_3$ single crystals

Z. Xu, X. Tan and J.K. Shang

A measurement technique for mechanical vibration using a thickness-mode piezoelectric transducer with two comb-shaped electrodes

*T. Fujita, T. Hashimoto and K.
Toda*

Localized electromechanical properties of PZT thin films measured by nanoindentation

*P. Hvizdos, M.J. Reece, A.J.
Bushby, R.W. Whatmore, Q.
Zhang and M. Alguero*

Measurement of dielectric properties by evanescent microwave scope

Y.-C. Chen, H.-F. Cheng, C.-

M. Lei and I-N. Lin

Electromechanical characterization of thick PT and PZT films

L. Simon and P. Gonnard

Detection of hydrogen in ferroelectric thin films using elastic recoil detection analysis

*T. Kaneko, M. Watamori, and
G. Kano*

Phase transitions in PZT ceramics prepared by different techniques

*A. Deineka, L. Jastrabik, G.
Suchaneck and G. Gerlach*

ESR investigations of nanosize powders of barium titanate

*I.P. Bykov, A.M. Slipenyuk,
A.N. Morozovskaya, A.V.
Ragulya, A.V. Polotai, V.P.
Klimenko, V.V. Skorokhod and
C.A. Randall*

ESR investigation of mixed ferroelectric relaxor systems PZ/PT/PNN

*I.P. Bykov, A.M. Slipenyuk,
L.P. Yurchenko, M.D.
Glinchuk, G. Robert and L.
Jastrabik*

Spectral analysis of the electromechanical response of an electroactive material by implementation of Fourier decomposition

*C.B. DiAntonio, F.A. Williams, Jr., S.M. Pilgrim and
W.A. Schultze*

Peculiarities of incommensurate phase in ferroelectrics-semiconductors $TlInS_2$ and $TlGaSe_2$

*B.R. Gadjev and A.I.
Beskrovnyi*

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Studies of dielectric properties and crystallization in amorphous $\text{Bi}_4\text{Ti}_3\text{O}_{12}$

*M. Takashige, S. Hamazaki,
M. Kokubun, Y. Haga, T.
Yamaguchi and M.-S. Jang*

Evaluation method of longitudinal and transverse piezoelectric d-coefficients for thin films

D. Kim and H.-G. Kim

Echo cancelling in ultrasonic ranging using artificial neural networks

H. Monsef

Measurement of microwave dielectric spectra of BaTiO_3 - BaZrO_3 ceramics using impedance analyzer and 3D electromagnetic field analysis

H. Kakemoto, S. Wada and T. Tsurumi

Design simulation for the manufacture of high frequency ceramic filters

*S.H. Lee, J.Y. Seok, S.J. Ha,
J.H. Yoo, S.K. Min and G. Sa-
Gong*

Structure and dielectric properties of nickel or lanthanum/chromium doped barium titanate ceramics

*M. Fukunaga, Y. Ueze and K.
Kohn*

Piezoelectric coefficients of PZT thin films

*R.C.W. Tsang, K.W. Kwok,
H.L.W. Chan and C.L. Choy*

Domain patterning in lithium niobate: Analysis of switching

current data

*V. Shur, E. Nikolaeva, E.
Rumyantsev, E. Shishkin and
V. Kozhevnikov*

Search for relaxor behaviors in ferroelectric-antiferroelectric mixed crystals

*E. Matsushita and K.
Takahashi*

Ferroelectric and magnetic properties of Ta_2O_5 -doped $\text{PrFeO}_3\text{-PbTiO}_3$ and $\text{BiFeO}_3\text{-PbTiO}_3$ ceramics

*J.S. Kim, C.-I. Cheon,
Y. N. Choi and P. W. Jang*

A study of electrostriction and residual stress of high capacitance multilayer ceramic capacitors (MLCs)

*Y. Nakano, K. Horino,
T. Nomura, T. Takenaka*

Effect of cooling rate on quality loss of $(\text{Zr}_{0.8}\text{Sn}_{0.2})\text{TiO}_4$ ceramics with additives

F.S. Kim

Ion doping effects in bilayered ferroelectric ceramics and thin films

*T.K. Song, J.S. Kim, J.K. Kim,
B.S. Kim, S.S. Kim and M.H.
Kim*

Microwave dielectric spectroscopy of ferroelectric thin films

*B. Kim, M. Jeong, S. Baik, B.
Kazmirenko and Y. Poplavko*

Nanocrystalline BaTiO_3 ceramics prepared via microemulsion synthesis: Powder characteristics and consolidation behavior

*C. Pithan, F.-H. Haegal, J.
Dornseiffer and R. Waser*

Luminescence from fluorescent material excited by piezoelectric transformer

*K. Teranishi, S. Suzuki and
H. Itoh*

Broadband microwave probe for nondestructive tests of ferroelectric coatings

*A.M. Grishin and V.P.
Denysenkov*

Measurements of ferroelectric films parameters at the K-V band

*A. Kosyrev, M. Gaidukov,
V. Keis, A. Gagarin and
I. Kotelnikov*

Calibration of PZT cantilever using integrated piezoresistive sensors in high speed atomic force microscopy

*H.-J. Nam, Y.-S. Kim, S.-M.
Cho, D.-C. Kim and J.-U. Bu*

Size effect on phase transitions of barium titanate studied by dielectric and Raman scattering methods

*T.-L. Ren, X.-H. Wang, L.-T.
Liu, Z.-J. Li, P.-L. Zhang and
W.-L. Zhong*

Investigation of the degradation mechanism on PZT thin films by the TSC method

*M. Matsuoka, T. Nishida, I.
Kawakami and T. Shiosaki*

CHARACTERIZATION--SPM

Quantitative measurement of dielectric properties using scanning nonlinear dielectric microscopy

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with electro-conductive cantilever

K. Ohara and Y. Cho

Investigation of domain switching and retention in oriented $\text{PbZr}_{0.3}\text{Ti}_{0.7}\text{O}_3$ thin films by scanning force microscopy

D. Fu, K. Kato, M. Minakata and H. Suzuki

Tip effects of piezoelectric mode atomic force microscopy for local piezoelectric measurements

G. Hu and T. Tang

Domain and piezo images of PZT family thin films

Y. Masuda, K. Kakimoto, H. Kakimoto and K. Watanabe

Quantitative measurements of piezoelectric coefficients of thin films using AFM piezoresponse mode

B. Gautier, S. Ballandras, V. Blondeau-Patissier, W. Daniau, D. Hauden and J.C. Labrune

Detailed scanning force microscopy study of separated nanosized ferroelectric grains using various scanning modes

A. Roelofs, T. Schneller, C. Szot and R. Waser

Nanoscale spatial correlation of dynamical piezoelectric displacement hysteresis loops of PZT films in the fresh and fatigued states

D. Ricinschi and M. Okuyama

Determination of scaling issues in very thin PZT films utilizing KFM

D. Jang, J. Heo, I. Yi and

I. Chung

DIELECTRICS (CAPACITORS, CERAMICS)

Densification and dielectric properties of barium neodymium titanium oxide

C.-H. Lu and Y.-H. Huang

Dielectric properties of $\text{Pb}(\text{Mg}_{1/3}\text{V}_{2/3})\text{O}_3\text{-PbZrO}_3$ materials

Y. Yamashita and Y. Hosono

A new lead-free family of perovskites with a diffuse phase transition: NaNbO_3 -based solid solutions

I.P. Raevski, S.A. Prosandeev and L. Jastrabik

Net shape grain oriented lead metaniobate components by layered manufacturing

M. Allahverdi, N. Marandian-Hugh, K. Nonaka and A. Safari

Effect of Mn addition on electrical properties of Ni-MLCC

K. Morita, Y. Mizuno, H. Chazono and H. Kishi

Study of the electromechanical behavior of ferroelectric ceramics

O. Guillon, F. Thiebaud, D. Perreux and P. Delobelle

Effect of dielectric layer thickness reduction on insulation resistance of Ni-MLCs

D. Iwanaga, M. Miyauchi, T. Hibi and Y. Nakano

Effect of nickel content on the

cryogenic dielectric response of temperature--

$\text{Pb}((\text{Mg}_{1-x}\text{Ni}_x)_{1/3}\text{Ta}_{2/3})\text{O}_3$

A.K. Gutmann and S.M. Pilgrim

Influence of Nb_2O_5 content on dielectric characteristics of ferroelectric SBN ceramics

M.-S. Kim, S.-I. Kang, J.-H. Lee, J.-J. Kim and H.Y. Lee

An effective interlayer dielectric and passivation scheme using reactively sputtered Al_2O_3 for the multilayer $(\text{Ba},\text{Sr})\text{TiO}_3$ capacitors

L. McNeil, A. Kassam, M. Zelner and P. Woo

An effective interlayer dielectric and passivation scheme using reactively sputtered Al_2O_3 for $(\text{Ba},\text{Sr})\text{TiO}_3$ capacitors

A. Kassam, I. Koutsaroff, L. McNeil, J. Obeng, P. Woo and M. Zelner

Effect of Y doping on acceptor valence

S. Sato, T. Nomura and K. Fukuda

Microstructural and dielectric properties of ceramics based on $\text{K}_2\text{Sr}_4\text{Nb}_{10}\text{O}_{30}$ and BaTiO_3

R. Chen, L. Li and Z. Gui

Modification of dielectric properties in the lead magnesium niobate-lead titanate ferroelectric system

W.-J. Hwang and C.-H. Lu

Properties of lead barium zirconate titanate based relaxor dielectrics for power electronics applications

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*M.-J. Pan, R.J. Rayne and
B.A. Bender*

**FERROELECTRICS
(CERAMICS)**

Properties of
 $\text{PbFe}_{2/3}\text{W}_{1/3}\text{O}_3$ - PbTiO_3 systems in
the range of morphotropic phase
boundary

*L. Mitoseriu, P.M. Vilarinho
and J. L. Baptista*

Microstructure study of intergrowth
 $\text{Bi}_4\text{Ti}_3\text{O}_{12}$ - $\text{SrBi}_4\text{Ti}_4\text{O}_{15}$ and
 $\text{Bi}_{4-x}\text{La}_x\text{Ti}_3\text{O}_{12}$ - $\text{SrBi}_4\text{Ti}_4\text{O}_{15}$
ceramics

*D. Su, Y. Ding, J.S. Zhu and
Y.N. Wang*

Dielectric and mechanical properties
of (1-x)PMN-XPT

*P. Bao, W. Li, F. Yan, Y. Dai,
H. Shen, J. Zhu, H.L.W. Chan,
C.L. Choy and Y. Wang*

Ferroelectric relaxor composite thick
films

*A. Wu, P.M. Vilarinho, A.
Kholkin, J.L. Baptista*

Structural and dielectric behavior of
 Ba -substituted $\text{Pb}(\text{Yb}_{1/2}\text{Nb}_{1/2})\text{O}_3$
ceramics

*J.-H. Kim, H.S. Kim and W.K.
Choo*

Phase transition behavior of Se-
substituted $\text{Pb}(\text{Yb}_{1/2}\text{Nb}_{1/2})\text{O}_3$
ceramics

*J.-H. Kim, K.S. Koh and W.K.
Choo*

Hot-pressed ferroelectric ceramics
of solid solutions of the system

$\text{Ba}_{1.65}\text{Sr}_{3.35}\text{Nb}_{10}\text{O}_{30}$ -
 $\text{Ba}_4\text{Na}_2\text{Nb}_{10}\text{O}_{30}$ with TTB structures

*R.Z. Mehdiyeva and A.I.
Mamedov*

Phase transition of Fe- and Nb-
substituted $\text{Pb}(\text{Mg}_{1/2}\text{W}_{1/2})\text{O}_3$
ceramics

*K.S. Koh, I.W. Shim, J.-H Kim
and W.K. Choo*

Poling of ferroelectric
PT/P(VDF-TrFe) 0-3 composites

*Y.-T. Or, B. Ploss, F.G. Shin,
H.L.-W. Chan and C.-L. Choy*

Dielectric properties of samarium
substituted PLZT

C. Prakash and O.P. Thakur

Structural and dielectric properties
of calcium substituted lead titanate

C. Prakash and A. Bhalla

Preparation of nm-ordered barium
titanate fine particles using the 2-
step thermal decomposition of
barium titanyl oxalate and their
dielectric properties

*S. Wada, T. Hoshina, H.
Kakemoto and T. Tsurumi*

Ferroelectric properties in modified
 $\text{SrBi}_2\text{Ta}_2\text{O}_9$ ceramics

*C.I. Cheon, B.Y. Lee and J.S.
Kim*

Electrical properties of ferroelectric
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Ferroelectric properties and solid
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*K. Komagata, H. Takeda, S.
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*S.-I. Kang, M.-S. Kim, J.-H.
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*K. Li, H.L.W. Chan and C.L.
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doped $y\text{PbMg}_{1/3}(\text{Nb}_{1-x}\text{Ta}_x)_{2/3}\text{O}_3-(1-y)\text{PbTiO}_3$

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Influence of temperature on the structure and charge distribution of lithium niobate single crystals

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R. Komatsu, K. Adachi and K. Ikeda

Dielectric properties and phase transitions of <001> oriented Pb(Zn_{1/3}Nb_{2/3})O₃-PbTiO₃ single

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Morphotropic phase boundary and related properties of relaxor piezoelectric single crystals

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Top seeded solution growth and characterization of piezo-ferroelectric PZN-PT and PMN-PT single crystals

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Crystal growth and electrical properties of lead-free piezoelectric material $\text{Na}_{0.5}\text{Bi}_{2.5}\text{Nb}_2\text{O}_9$

*R. Aoyagi, H. Takeda,
S. Okamura and T. Shiosaki*

Seeded growth of relaxor ferroelectric single crystal $\text{Pb}[(\text{Zn}_{1/3}\text{Nb}_{2/3})_{0.91}\text{Ti}_{0.09}]\text{O}_3$ by the vertical Bridgman method

J.Y. Xu, J. Tong, M.L. Shi and S.J. Fan

Chemical variation in $\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3\text{-PbTiO}_3$ single crystals and ceramics

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Influence of different substrates on the detectivity of pyroelectric sensors

*L. Jinhua, Y. Ningyi,
H.L.W. Chan and C.L. Choy*

Properties of PT/P(VDF-TrFe) pyroelectric sensors based on plastic film substrates

Y. Ningyi, J. Li, H.L.W. Chan and C.L. Choy

Pyroelectric properties of β -PVDF thin films prepared by vacuum deposition method with applied electric fields

D.H. Chang and Y.S. Yoon

Response analysis of multilayer pyroelectric structures

D.H. Chang, S.J. Kang and Y.S. Yoon

Self-polarization and migratory polarization in thin film ferroelectric capacitors

*I.P. Pronin, E. Y. Kaptelov,
E.A. Tarakanov,
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Preparation of 3D 256 element PCLT/P(VDF-TrFe) infrared arrays.

*L. Jinhua, Y. Ningyi,
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A dielectric bolometer mode of infrared sensor using a $\text{Ba}(\text{Ti}_{0.85}\text{Sn}_{0.15})\text{O}_3$ thin film with a high temperature coefficient of dielectric constant

*M. Noda, T. Miyamoto,
S. Murakami, T. Nomura,
K. Inoue and M. Okuyama*

Effects of Mn doping on the properties of PST:BST systems

C. Prakash and A. Bhalla

Pyroelectric properties of barium titanate ceramics prepared by Sol-Gel and SAG methods

*T.-L. Ren, X.-H. Wang,
L.-T. Liu, Z.-J. Li, P.-L. Zhang
and W.-L. Zhong*

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Ferroelectric BST thin films using Sol-Gel technology for flat panel display applications

*W. Zhu, O.K. Tan, J. Ray and
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Study of the application of electro-optic polymers for waveguide switches

Z. Qin, C. Fang, Q. Pan, W. Shi, Q. Gu and X. Wu

Models of molecular alignment structure in polymer stabilized ferroelectric liquid crystals

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Ferroelectric thin film optical detectors for retinal prosthesis

*A. Zomorodian, N. J. Wu,
S. Wilczak, A. Ignatiev,
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Time domain terahertz spectroscopy of $\text{SrBi}_2\text{Ta}_2\text{O}_9$ thin films on MgO substrates

I. Kawayama, K. Kotani and M. Tonouchi

Electrooptic effects in epitaxial ZnO:Li thin films

T. Nagata, A. Ashida, Y. Takagi, N. Fujimura and T. Ito

Microstructure and optical properties of W,Li doped PZT piezoceramics

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Four port bidirectional optical switches using (Pv,La)(Zr,Ti)O₃ ceramics

T. Utsunomiya

ELECTRODE

Highly textured (100)RuO₂/(001)Ru multilayers prepared by sputtering

Y. Abe, M. Kawamura and K. Sasaki

Tungsten based electrodes for stacked capacitor ferroelectric memories

L. Trupina, J. Baborowski, P. Muralt, J.-M. Salese, D. Bouvet and P. Fuzan

Preparation of (100) oriented LaNiO₃ oxide electrodes for SrBi₂Ta₂O₉ based ferroelectric capacitors

G. Hu, T. Tang and J. Xu

Composition and electrical properties of metallic ruthenium thin films using Ru(C₆H₆)₂ precursors

J. Choi, Y. Choi, H. Tian, S. Kim and K. No

High temperature etching properties of iridium and iridium oxide electrode materials

S. Schneider, H. Kohlstedt and R. Waser

Thermal stability of SrRuO₃ bottom electrodes and the crystal structure and electrical properties of PZT thin films deposited on SrRuO₃

K. Takahashi, T. Oikawa, K. Saito, H. Fujisawa, M.

Shimizu and H. Funakubo

Properties of Pt alloy thin film electrodes for ferroelectric capacitors

M. Kurita, T. Shiosaki and S. Okamura

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T. Higuchi, S. Iwashita, M. Ishida, T. Shimoda, Y.X. Chen and J. Koike

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H. Masumoto, A. Kojima, T. Iijima and T. Goto

Influence of electrode material on the interfacial capacitance and failure mechanisms in PZT thin films

U. Ellermann, U. Boettger, T. Schneller, R. Waser, N. Nagel and R. Bruchhaus

Preparation of BaPbO₃ electrode thin films by RF magnetron sputtering and evaluation of their electrical properties

I. Kawakami, M. Matsuoka, T. Nishida, S. Okamura and T. Shiosaki

Effects of (Ba,Sr)RuO₃ thin films on hydrogen annealing of (Ba,Sr)RuO₃/(Ba,Sr)TiO₃/ (Ba,Sr)RuO₃ capacitors

E.-S. Choi and S.-G. Yoon

Preparation and characteristics of NiCr bottom electrode of ferroelec-

tric thin films

E.-M. Lee and S.-G. Yoon

HIGH-K, GATE OXIDES

Si diffusion in HfO₂ thin films deposited by atomic layer deposition for gate oxide application

M. Cho, J. Park, B.K. Park and C.S. Hwang

Interfacial reactions between chemical vapor deposited HfO₂ thin films and Hf cleaned Si substrate during film growth and post annealing

J. Park, B.K. Park, M. Cho and C.S. Hwang

Formation of reliable HfO₂/HfSi_xO_y gate oxides for metal-oxide-semiconductor devices

H. Kang, Y. Quan, D. Jung and Y. Roh

Characteristics of ZrO₂ thin films using atomic layer deposition for alternative gate dielectric

J. Park, B. Choi, N. Park and J. Kim

Characterisitcs of zirconium based amorphous thin films deposited by cosputtering

C. Jeon, S. Kong, J. An and J. Kim

La and Zr based alternative gate dielectrics: A structural and electrical investigation

C.R. Hoffman, D. Wicakasana, H. Schmidt, E. Garfunkel, S. Stemmer, J.-P. Maria and A. I. Kingon

Reduction of leakage current by

IFFF 2002 PAPERS

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T. Nishikawa, T. Otsuka and K. Morita

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Dielectric and magnetic properties of ferroelectromagnetic Pb(Fe_{1/3}Nb_{2/3})O₃ (PFN) ceramics

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Polarized transmission intensity studies of off zone center TiMeX₂ incommensurate semiconductors-ferroelectrics

N. Mamedov, Y. Shim and N. Yamamoto

Memory effect in layered semiconductor TiInS₂ with incommensurate phase

R.A. Suleymanov, T.G. Mammadov, S. Özdemir and K.R. Allakhverdiyev

Thermal expansion of layered crystals TiInS₂, TiGaSe₂

N.A. Abdullayev, T.G. Mammadov and R.A. Suleymanov

Analysis of the lateral and spurious modes of PZT/epoxy 1-3 composite rings

C.P. Chong, H.L.W. Chan and P.C.K. Liu

Low frequency dielectric dispersion in triglycine sulphate under microwave irradiation

G.I. Ovtchinnikova, Y.A. Pirogov and A.N. Soloshenko

Peculiarities of radiospectroscopy lines shape in nanomaterials

M.D. Glinchuk, A.N. Morozovskaya, A.M. Slipenyuk and I.P. Bykov

Synthesis of platelet SrTiO₃ by epitaxial growth on Sr₃Ti₂O₇ core particles

M.E. Ebrahimi, M. Allahverdi and A. Safari

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MATLAB and PSPICE micro-modeling of piezoelectric transformers for CCFL drives

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L. Hwang, J. Yoo, B. Lee, J. Kim, E. Jang, C. Lee, M. Cho and J. Kim

Optical properties of doped silica films prepared by microwave plasma enhanced chemical vapor

deposition

C.-K. Kao, C.-H. Tsai and I-N. Lin

Properties of PZT nanopowder doped silica films prepared by sol-gel process

P.-J. Yuen, J.-S. Kao, C.-H. Tsai and I-N. Lin

Relaxation characteristics of Ag(Ta,Nb)O₃ thin film varactors

J.-H. Koh, A. Lisauskas and A.M. Grishin

Variable emittance radiators using metal insulator phase transitions in La_{1-x}Sr_xMnO₃

A. Ochi, T. Mori, Y. Shimakawa, Y. Kubo, A. Okamoto, Y. Nakamura, S. Tachikawa, A. Ohnishi and K. Shimazaki

CFRP passive composite dampers by use of piezoelectric polymers/ceramics

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Dynamics and control of composite plate structures containing ferroelectric polymer laminas: application to antifouling processes

M. Rahmoune and M.A.A. Hamdi

Preparation and performance of NiCuZn-Co₂Z composite ferrite materials

W. Ou, X.H. Wang and L. Li

Light modulation properties of novel piezoelectric polymers

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A novel liquid dispensing device using fluidic inertial force

S. Takahashi, H.O. Kitagawa, and Y. Tomikawa

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Solid freeform fabrication: an intelligent CAD-based system for fabrication of novel functional electroceramics

A. Safari

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Dielectric response of epitaxial SrBi₂Ta₂O₉ thin films observed with interdigital electrodes

K. Kotani, I. Kawayama and M. Tonouchi

Initial growth of SrBi₂Ta₂O₉ thin films on SrTiO₃(100) and MgO(100) substrates

I. Kawayama, K. Kotani and M. Tonouchi

Influence of Ca on structural and ferroelectric properties of laser ablated SrBi₂Ta₂O₉ thin films

R.R. Das, P. Bhattacharya, W. Perez and R.S. Katiyar

Thickness effect in PZT thin films investigated by means of X-ray photoelectron, UV photo-yield and photo-reflectance spectrometers

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Ferroelectric SrBi₂Ta₂O₉ thin films by aqueous chemical solution deposition

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T. Nakamura, S. Momose and K. Tachibana

In situ diagnostics of crystal growth in metalorganic chemical vapor deposition of (Ba,Sr)TiO₃ films using infrared reflection absorption spectroscopy

T. Nakamura, S. Momose and K. Tachibana

Dielectric properties of epitaxially grown Y₂O₃ on Si substrates

N. Fujimura, K. Kakuno, T. Matsui, K. Morii and T. Ito

Processing and properties of tungsten bronze (Ba,Ln)Nb₂O₆ [Ln: rare earth] thin films by chemical solution deposition

W. Sakamoto, M. Mizuno, Y. Horie, T. Yogo and S. Hirano

Chemical processing and properties of (Sr,Ca)₂(Nb,Ta)₂O₇ thin films

W. Sakamoto, Y. Yura, D. Kawasake, T. Yogo and S. Hirano

Effect of A-site substitution on the magnetic and dielectric behaviors of YMnO₃ based ferroelectric thin films

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Nucleation and growth of (Ba,Sr)TiO₃ thin films in an MOCVD reactor

P. Ehrhart, F. Fitsilis, S. Regnery, R. Waser, F. Schienle, M. Schumacher and H. Juergensen

Fabrication of ferroelectric Pb(Zr,Ti)O₃ thin films with various Zr/Ti ratios by ink-jet printing

R. Takeuchi, S. Okamura, T. Maekawa and T. Shiosaki

Comparative microstructure and electrical property studies of PST thin films prepared by LOCVD, sol-gel, and sputtering techniques

Z. Huang, P.P. Donojue, Q. Zhang, D. Williams, C.J. Anthony, M.A. Todd and R.W. Whatmore

Nano-probe and *in situ* TEM investigation of the role of ultra thin SiO_x layers on epitaxial YSZ/SiO_x/Si thin films as multifunctional buffer layers

T. Kiguchi, N. Wakiya, K. Shinozaki and N. Mizutani

The effect of annealing on the structure and dielectric properties of (Ba_{1-x}Sr_x)TiO₃ thin films

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<p><i>W. Wu, D. Peng, X. Liang and Z. Meng</i></p> <p>Preparation of BaTiO₃-BaZeO₃ by matalorganic chemical vapor deposition</p> <p><i>T. Tohma, H. Masumoto and T. Goto</i></p> <p>CrTiN/TiN double barrier layers of COB structure for high density FeRAM applications</p> <p><i>J. Kim, J. Koo, S.-K. Hong and S.-J. Yeom</i></p> <p>Preparation of BaTiO₃ thin films at 140°C by MOD-hydothermal method with different precursors</p> <p><i>Z. Wei, M. Noda and M. Okuyama</i></p> <p>Growth processes and surface acoustic wave characteristics of</p>	<p>LiNbO₃/diamond/silicon multilayered structures</p> <p><i>E. Dogheche, V. Sadaune, S. Chauvin and D. Remiens</i></p> <p>Thin oxidized titanium as a bottom electrode adhesion layer for Pt/BST/Pt capacitors</p> <p><i>I.P. Koutsaroff, P. Woo, L. McNeil, M. Zelner, M. Buchbinder and B. McClelland</i></p> <p>Investigation of an alumina barrier layer for FeRAMs prepared by the RF magnetron sputtering method</p> <p><i>T. Jimbo, Y. Miyaguchi, S. Kikuchi, M. Tanimura, K. Suu and M. Ishikawa</i></p> <p>Leakage current properties of (Ba_{0.7}Sr_{0.3}) thin films depending on the film thickness</p>	<p><i>C. Kügeler, R. Liedtke and R. Waser</i></p> <p>Aqueous chemical solution deposition for ferroelectric thin films</p> <p><i>M.K. Van Bael, K. Van Werde, D. Nelis, D. Mondelaers, A. Hardy, O. Vanhooyland, H. Van den Rul, M.K. Van Bael, J. Mullens, L.C. Van Poucke, F. Frederiz and D.J. Wouters</i></p> <p>Study of non-lead-based relaxor-pulsed excimer laser ablated Sn modified BaTiO₃ thin films</p> <p><i>S. Halder, P. Victor, A. Laha, S. Bhattacharya and S.B. Krupanidhi</i></p> <p>Pulse-extended excimer laser crystallization of ferroelectric thin films for integration on low thermal budget substrates</p> <p><i>P.P. Donohue and M.A. Todd</i></p>
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THE THIRD INTERNATIONAL SEMINAR OF THE PHYSICS OF FERROELASTIC CRYSTALS (ISFP-3)

Organized by the laboratory of Ferroelectrics at Voronezh State Technical University, the **Third International (VIII in the Series) Seminar on the Physics of Ferroelastic Crystals** was held in Voronezh, Russia, September 11-14, 2000. Begun in 1978, in 1994 the seminar's name was changed to International Seminar to include the scientists of the several republics of the former Soviet Union as well as some scientists from Western Europe. Six plenary invited lectures, 24 oral reports and 52 posters were presented by about 65 participants

A part of the papers presented, guest edited by S.A. Gridnev and L.A. Shuvalov, was published in *Ferroelectrics* (Vol. 265, 2001) and the other parts, in Russian, in *Izvestiya RAN, Ser. Fiz.* (Vol. 65, no. 8, 2001). The ISFP-3(VIII) was sponsored by the Russian Foundation for Basic Research, Gordon and Breach Science Publishers and the Journal of *Ferroelectrics*.

Honorary Chairman L.A. Shuvalov (*Institute of Crystallography, Russian Academy of Sciences, Moscow*)
Chairman S..A. Gridnev (*Voronezh State Technical University*)

International Advisory Committee

R. Blinc (Slovenia)----E.F. Dudnik (Ukraine)----S.A. Gridnev (Russia)----T. Hahn (Germany)----
Y. Ishibashi (Japan)----E.K.H. Salje (United Kingdom)----L.A. Shuvalov (Russia)----V.K. Wadhawan (India)

ISFP-3 PAPERS

Improper ferroelastic SrTiO₃ and what we know today about its properties

V.V. Lemanov

Lattice dynamics of antiperovskite structure compounds A₃OX (A=Na, K; X=Cl, Br)

V.I. Zinenko and N.G. Zamkova

Phase transitions in crystals characterized by polarization and deformation components of the order parameter

B.M. Daiinskii, Y.I. Sapronov, and V.V. Shalimov

The dynamics of the interacting twin boundaries ensemble in ferroelectrics-ferroelastics

S. Moiseev and V. Nechaev

The anomalous phonon entrainment of the point defect in soft mode crystals

I.L. Bataronov, M.V. Yur'yeva and V.A. Yur'yev

Theory of isotope effect in SrTi(16O_{1-x}18O_x)₃

O.E. Kvyatkovskii

Clusters induced by real and incipient ferroelastic phase transitions

Y.F. Markov, K. Knorr and E.M. Roginskii

Stress induced change of the Lifshitz point type in A₂BX₄ compounds

I. Luk'Yanchuk and P. Saint-Gregoire

Freezing and structural relaxation in water non-stoichiometric ferro-

elastics of the M_zH_y(AO₄)_{z+y/2}:xH₂O family
A.I. Baranov

Dielectric properties of KDP-ADP mixed crystals in the vicinity of ferroelectric phase transitions

L.N. Korotkov, L.A. Shuvalov and R.M. Fedosyuk

Low frequency acoustic properties of KLiSO₄ crystals at high temperatures

A.A. Khodorov

Physics of ferroelectric thin film memory devices

J.F. Scott and M. Dawber

New data on the polymorphous transformations and T-x phase diagrams of Na_{1-x}Li_xNbO₃ and Na_{1-x}K_xNbO₃ solid solutions

I.P. Raevski, L.A. Reznichenko, V.G. Smotrakov, V.V. Eremkin, M.A. Malitskaya, L.A. Shilkina and E.M. Kuznetsova

Kinetics of the formation of KH₂PO₄ fractal structures

I.V. Zolotukhin and S.V. Spitsina

Generation of flicker noise during motion of strictly oriented domain walls

V.Y. Shur, V.L. Kozhevnikov, R.K. Ivanov and D.V. Pelegov

Computer analysis of the dynamics of domain boundaries in ferroelectrics-ferroelastics

V.M. Nesterov and A.V. Shil'nikov

Thermostimulated exoemission from KH₂PO₄ and TGS crystals

P.V. Loginov and A.M. Savvinov

Charge Transfer vibronic excitons in transient optical response: Critical dependence near ferroelectric phase transition of KTa_{1-x}Nb_xO₃

V.S. Vikhnin and H. Liu

Charge transfer vibronic excitons in incipient ferroelectrics and related problems

V.S. Vikhnin, R.I. Egglis and S. Kapphan

Influence of X-ray irradiation on the formation of dielectric hysteresis loops for unipolar TGS crystals

S.D. Milovidova, A.S. Sidorkin and O.V. Rogazinskaya

MRS 2002 Fall Meeting
2 - 6 December 2002
Hynes Convention Center/Sheraton Boston Hotel
Boston, Massachusetts, USA
[**www.mrs.org/meetings/fall2002/program**](http://www.mrs.org/meetings/fall2002/program)

PROGRAM INTEREST ANNOUNCEMENT***EXPLOITATION OF RELAXOR PIEZOELECTRIC SINGLE CRYSTALS
IN NAVY SONAR SYSTEMS***

The Office of Naval Research announces its interest in projects to apply relaxor piezoelectrics, in the form of single crystals, to Navy SONAR systems.

The discovery of the extraordinary properties for electromechanical transduction in these materials was made more than five years ago (see references 1 and 2 below). An intense program of materials development and device demonstrations, under sponsorship of the Defense Advanced Research Projects Agency and the Office of Naval Research, has advanced the materials technology to the level of prototype quantities/costs and confirmed the considerable potential—enhanced device sensitivity, source level, bandwidth and compactness—originally envisioned for Navy SONAR devices.

This announcement solicits concept papers for projects

- (1) to mature the materials technology to the level of production and
- (2) to advance the SONAR device demonstrations to the threshold of acquisition in Navy systems.

The time frame targeted to reach the threshold of acquisition is within five years—sooner is better.

Interested performers are encouraged to contact the appropriate program manager from the list given below to set forth their ideas in concise concept papers explaining the development trajectory and approximate costs. Any proposals emerging from this dialogue will be submitted and acted on in the normal course of events as described in ONR's Main BAA 03-001, Long Range Scientific and Technology Program, (published in FedBizOpps on 5 September 2002, accessible on: www.onr.navy.mil/02/baa).

While there is a realistic expectation that a PiezoCrystals Exploitation Program will be launched in FY03, no specific funding level is determined—that will depend on the technical merit and system impact of the candidate efforts.

Acoustic Transduction Steering Committee**Acoustic Communication**

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Materials Growth and Electromechanical Properties

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Acoustic Stealth and Supercavitating Torpedo Sonar

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Materials Mechanical Strength

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PROGRAM INTEREST ANNOUNCEMENT

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James McEachern
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Torpedo Detection Sonar
Michael Vaccaro
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Submarine Sonar: Sensors
Roy Elswick
(703) 588 1036, elswick@onr.navy.mil

Torpedo Sonar
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Adam Nucci
(703) 696 7255, nucciaj@onr.navy.mil

Submarine Sonar: Sources
Jan Lindberg
(703) 696 7116, lindbej@onr.navy.mil

References:

1. S. E. Park and T. R. Shroud, "Ultrahigh Strain and Piezoelectric Behavior in Relaxor based Ferroelectric Single Crystals," *J. Appl. Phys.*, 82[4], 1804-1881 (1997).
2. S. E. Park and T. R. Shroud, "Characteristics of Relaxor-Based Piezoelectric Single Crystals for Ultrasonic Transducers," *IEEE Trans. on Ultrasonics, Ferroelectrics and Frequency Control*, Vol. 44, No. 5, 1140-1147 (1997).

Ferroelectricity Newsletter
including all back issues is available on the Internet

<http://www.sp.nps.navy.mil/projects/ferro/ferro.html>

in Adobe Acrobat PDF file format

The PDF file format maintains the graphics and organization of the printed newsletter. Adobe Acrobat Reader is a help application distributed free from the Web browsers. Acrobat is available for Macintosh, Windows, DOS, SGI, and Sun SPARC operating systems.

If you want a hard copy of the newsletter, you must let us know by

e-mail: liebmann@redshift.com or rpanholzer@nps.navy.mil

mail: Hannah Liebmann
215 Thompson Square, Mountain View, CA 94043-4218 USA

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Upcoming Meetings

7th Russia/CIS/Baltic/Japan Symposium on Ferroelectrics (RCBJSF-7), St. Petersburg, Russia	24-28 Jun 2002	No.1-2, p.37
6th European Conference on Applications of Polar Dielectrics (ECAPD-6), Aveiro, Portugal	2-5 Sep 2002	No.1-2, p.37
10th European Meeting on Ferroelectricity (EMF-2003), Cambridge, UK	3-8 Aug 2003	No.1-2, p.38
18th Conference on Crystal Growth and Epitaxy, Stanford Sierra Camp, Fallen Leaf Lake, California, USA	2-5 Jun 2002	No.1-2, p.39
2nd Canada-US Workshop on Smart Materials and Structures, Montreal, Quebec, Canada	10-11 Oct 2002	No.3, p.19
Non-Volatile Memory Technology Symposium 2002 (NVMTS 2002), Honolulu, Hawaii, USA	4-6 Nov 2002	No.3, p.20
15th International Symposium on Integrated Ferroelectrics (ISIF 2003), Colorado Springs, Colorado, USA	9-12 Mar 2003	No.3, p. 20
3rd Asian Meeting on Ferrocermics (AMEC-3), Singapore	29 Jun-4 Jul 2003	No.3, p.21
Polar Oxides: Properties, Characterization and Imaging, Capri, Italy	8-11 Jun 2003	No. 3, p.22
4th Asian Meeting on Ferroelectrics 2003, Bangalore, India	14-17 Dec 2003	No.3, p.22

Conference Reports

10th International Meeting on Ferroelectricity (IMF-10)	3-7 Sep 2001	No. 1-2, p.2
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Conference Papers

10th International Meeting on Ferroelectricity (IMF-10)	3-7 Sep 2001	No. 1-2, p.4
International Joint Conference on the Applications of Ferroelectrics (IFFF2002)	28 May-1 Jun 02	No. 3, p. 2 and No.4, p.2
Third International Seminar of the Physics of Ferroelastic Crystals (ISFP-3)	11-14 Sept. 2000	No.4, p.19

Miscellaneous

Formation of Board of Asian Ferroelectric Association	No.3, p.23
Exploitation of Relaxor Piezoelectric Single Crystals in Navy SONAR Systems	No.4, p.21

Deadline for ISIF abstract submission extended

The deadline for abstract submission for the 15th International Symposium on Integrated Ferroelectrics (March 9-12, 2003) has been extended to November 15, 2002. Please refer to the ISIF Web site, www.isif.net, for instructions on preparing and submitting your abstract.

Space Systems Academic Group
Cose SP
Bullard Hall, Bldg. 233, Room 125
Naval Postgraduate School
Monterey, CA 93943 USA

Fall 2002

Ferroelectricity Newsletter

CALENDAR OF EVENTS 2003

Mar 9-12 15th International Symposium on Integrated Ferroelectrics (ISIF 2003), Colorado Springs, Colorado, USA (see *Ferroelectricity Newsletter*, Volume 10, No.3, p.20)

Apr 28-May 3 International Conference on Metallurgical Coatings and Thin Films (ICMCTF-2003), San Diego, California, USA (Web site: www.avs.org/conferences/icmctf/call/2003)

Jun 8-11 Polar Oxides: Properties, Characterization and Imaging, Capri, Italy (see *Ferroelectricity Newsletter*, Volume 10, No.3, p.22)

Jun 29-Jul 4 3rd Asian Meeting on Ferrocermics (AMEC-3), Singapore (see *Ferroelectricity Newsletter*, Volume 10, No.3, p.21)

Aug 3-8 10th European Meeting on Ferroelectricity (EMF2003), Cambridge, UK, (see *Ferroelectricity Newsletter*, Volume 10, Nos.1/2, p.38)

Dec 14-17 4th Asian Meeting on Ferroelectrics 2003, Bangalore, India (see *Ferroelectricity Newsletter*, Volume 10, No.3, p.22)

FWPR-2001 PAPERS

SECOND FERROELECTRIC WORKSHOP IN PUERTO RICO (FWPR-2001)

Organized by the Puerto Rico EPSCoR Program the **Second Ferroelectric Workshop in Puerto Rico (FWPR-2001)** was held from May 31 to June 2, 2001, in San Juan, Puerto Rico. There were two days of oral presentations offered in single sessions, 14 invited talks and 7 contributed talks. A poster session was held one evening, with 22 posters presented. A panel discussion was held on the last day. Participants, other than presenters, included a group of local graduate students.

Organizing Committee

Ram S. Katiyar, General Chair (University of Puerto Rico)
 F.A. Miranda (NASA Glenn Research Center)
 F.E. Fernandez (University of Puerto Rico)

The FWPR-2001 proceedings, guest edited by Ram S. Katiyar, Felix A. Miranda and Felix E. Fernandez were published in **Integrated Ferroelectrics** (Vol. 42, 2002)

Questions of effective masses in ferroelectric FETs

J.F. Scott

Properties of platinum films by liquid source MOCVD in H₂ and O₂

*J. Goswami, P. Majhi,
 C.G. Wang and S.K. Dey*

Sol-gel PZT for MEMS applications

*B. Polcawich, D. Devoe and
 D. Wickenden*

Frequency agile materials for electronics (FAME)--Progress in the DARPA program

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Dielectric properties of Ba_{1-x}Sr_xTiO₃ single crystal fibers grown by laser heated pedestal growth techniques

*D. Garcia, R. Guo and
 A.S. Bhalla*

Monolithic integration of superconducting YBCO and dielectric SrTiO₃ films on polycrystalline ferrites

*Q.X. Jia, J.R. Groves, P.N.
 Arndt, P. Lu and F.A. Miranda*

Ferroelectric capacitors made by a laser forward transfer technique

*R. Modi, H.D. Wu, R.C.Y.
 Auyeung, J.E.S. Wollmers and
 D.B. Chrisey*

Improved temperature stability of microwave properties in tunable devices using substituted

Ba_{1-x}Sr_xTiO₃
*D.M. Potrepka, S.C. Tidrow
 and A. Tauber*

BaTiO₃ on YBa₂Cu₃O₇ high T_c superconductors--microwave properties

*A. Corrales, Y.A. Vlasov and
 B.L. Larkins, Jr.*

Ferroelectric thin films based technology for frequency- and phase-agile microwave communication applications

*F.A. Miranda, F.W. van Keuls,
 R.R. Romanofsky,
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Design and development of ferroelectric tunable coplanar waveguide components for Ku- and K-band

applications

*G. Subramanyam,
 N. Mohsina, A. Zaman,
 F.W. van Keuls, F.A. Miranda,
 R.R. Romanofsky, J.D. Warner
 and C. Chen*

Interface structures and epitaxial behavior of ferroelectric

(Ba,Sr)TiO₃ thin films

*C.L. Chen, T. Garrett, Y. Lin,
 J.C. Jiang, E.I. Meletis,
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Nanoscale phenomena in ferroelectric thin films

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Structural and ferroelectric properties of aurivillius phase materials

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Evaluation of chemical solution deposited Ba_xSr_{1-x}TiO₃ thin films on LaAlO₃ in tunable microwave devices

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Structure, morphology, and properties of strontium barium niobate thin films grown by pulsed laser deposition

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R. J. Meyer, Jr., S. Alkoy,
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Critical issues in sol-gel derived ferroelectric thin films: A review

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Diffuse phase transition characteristics and relaxor behavior of lanthanum doped lead titanate thin films

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Studies on laser ablated $\text{SrBi}_2\text{Ta}_2\text{O}_9$ and $\text{Sr}_{0.8}\text{Ca}_{0.2}\text{Bi}_2\text{Ta}_2\text{O}_9$ ferroelectric thin films

*R.R. Das, P. Bhattacharya,
W. Perez, A. Morales Cruz,
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Design and simulation of a tunable multilayer Lange coupler

*J.G. Colom, R.A. Rodriguez-Solis, J. Almodovar and
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Comparison of the electrical characteristics of PZT and SBT thin films

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Synthesis and ferroelectric response of $\text{Bi}_{4-x}\text{Nd}_x\text{Ti}_3\text{O}_{12}$ thin films

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M.S. Tomar and R.S. Katiyar*

Highly textured chemical solution deposited $\text{Ba}_{0.5}\text{Sr}_{0.5}\text{Ti}_{1-x}\text{Mn}_x\text{O}_3$ ($x \sim 0$ to 5 at %) thin films for microwave dielectric applications

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Spectroscopy of pure and Eu^{3+} doped ZnO

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Synthesis and structural characterization of $(\text{Sr},\text{CA})\text{Bi}_2\text{Ta}_2\text{O}_9$ ceramics

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Investigation of the dielectric and polarization behavior of sol-gel derived erbium doped

$\text{Pb}(\text{Zr}_{0.53}\text{Ti}_{0.47})\text{O}_3$ thin films

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Monte Carlo results for the ferroelectric phase transitions of TGS, NaNO_2 and DKDP ultra thin films

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Micro-RAMAN characterization of the phase transition behavior in lanthanum doped lead titanate thin films

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Growth and dielectric behavior of $\text{Nb}_2\text{O}_5(1-X):\text{XTiO}_2$ single crystals

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Dielectric relaxation behavior and high tunability in $\text{Cd}_2\text{Nb}_2\text{O}_7$

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Round Table discussion FWPR, 2001: Future trends in ferroelectric materials research and applications

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